Applying Universal Design to Information Literacy

Teaching Students Who Learn Differently at Landmark College

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Guest Columnists

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Our classrooms now include an increasing number of students who learn differently, including those that have Attention-Deficit/Hyperactivity Disorder (AD/HD), dyslexia, or other diagnosed or undiagnosed learning differences. This spectrum of students challenges academic librarians to develop new approaches to delivering information literacy instruction. The Association of College and Research Libraries (ACRL) Standards for Proficiencies for Instruction Librarians and Coordinators addresses the needs of diverse learners, and many librarians incorporate active learning methods designed to engage students. Nevertheless, an integrated approach ensuring that information literacy instruction is accessible to all learners is needed. Universal Design for Instruction (UDI), developed to increase access for students with learning disabilities at the postsecondary level, provides a framework that librarians can apply to design inclusive information literacy curricula. The Research Services Librarians at Landmark College, a college for students with learning disabilities or AD/HD, have adapted the principles of UDI to develop an approach to library instruction called Universal Design for Information Literacy (UDIL). This column is based on the presentation "Universal Design for Information Literacy," which we delivered at the 2008 New England Library Instruction Group Annual Program.

STUDENTS WHO LEARN DIFFERENTLY

Most every teaching librarian has a story of the student who is restless and distracted and who acts like the class clown, procrastinates, fails to participate, falls behind, or struggles to skim-read a list of articles. Although librarians generally do not know if these students have learning disabilities or AD/HD, these behaviors are more common and more pronounced among students with those challenges. The number of students with learning disabilities is on the rise. According to the National Center for Education Statistics, in 2004, 11.3 percent of undergraduates reported some type of disability.[1] Among those, 7.5 percent reported a specific learning disability such as dyslexia, and 11 percent reported Attention Deficit Disorder.[2] This represents a 50 percent or more increase since 2000 and shows that, in most classrooms, there are one or more students with a learning disability or AD/HD; though librarians cannot always identify who these students are.[3] It is likely that the number of students with learning disabilities or AD/HD is even higher because students at the postsecondary level must self-identify. Many students choose not to self-identify, possibly for fear of being stigmatized. A 2005 report

from the National Longitudinal Transition Study-2 found that only "40% of postsecondary students with disabilities identify themselves as having a disability and have informed their postsecondary schools of that disability."[4]

The Learning Disabilities Association of America (LDA) defines a learning disability as "a neurological condition that interferes with a person's ability to store, process, or produce information."[5] The LDA describes four processes a student with learning disabilities may have challenges with: "getting information into the brain (Input), making sense of this information (Organization), storing and later retrieving this information (Memory), or getting this information back out (Output)."[6] A student with a learning disability may have challenges with more than one process.

It is important to recognize that a learning disability is not related to intelligence, and many students who are not officially diagnosed with a learning disability may have similar learning difficulties. A student with dyslexia may find reading text challenging, but the same material delivered in a different format, audio for example, would be just as comprehensible to a student with dyslexia as the text is to a student without dyslexia. For this reason, many of us at Landmark College use the term "learning differences" rather than learning disabilities.

Dyslexia is not necessarily outwardly displayed in a student's behavior. The LDA describes that a student with dyslexia "experiences decoding errors, reads slowly, shows wide disparity between listening comprehension and reading comprehension, has trouble spelling, and may have difficulty handwriting."[7] Students with dyslexia have difficulty with "rapid visual-verbal responding."[8] The use of clickers in library classrooms, an attractive active learning exercise, favors fast readers and fast cognitive processors. Clickers can pose a challenge for a student with dyslexia. Also, taking notes during a lecture can be challenging, and students with dyslexia often prefer information in a visual format, such as a concept map that displays similar search words. Another challenge that students with dyslexia face in a library class is falling behind when trying to repeat the library instructor's search terms or when trying to skim the results list of articles.

AD/HD is considered a psychiatric disorder rather than a specific learning disability like dyslexia. However, many individuals with AD/HD also have a specific learning disability. The LDA states that AD/HD

> can be determined to be a disability under the Individuals with Disabilities Education Act (IDEA), making a student eligible to receive special education services. However, AD/HD falls under the category "Other Health Impaired" and not under "Specific Learning Disabilities."[9]

AD/HD is a "persistent pattern of inattention and/or hyper-activity-impulsivity that is more frequently displayed and more severe than is typically observed in individuals at a comparable level of development."[10] Typical behaviors of a student with AD/HD may include displaying disinterest, disorganization, and impulsivity, as well as procrastinating and misjudging available time. Students with AD/HD actually have a heightened sense of attention, rather than a deficit. They pay attention to nonrelevant stimuli in a task or their environment, taking away from the attention needed for the relevant information.[11]

As an individual with AD/HD enters adulthood, challenges with executive functions can become more prominent.[12] Executive function is an "umbrella term for the complex cognitive processes that serve ongoing, goal-directed behaviors."[13] Or, as Brown relates in *Attention Deficit Disorder: The Unfocused Mind in Children and Adults*, executive function challenges are like having a poor conductor of a symphony: "Impairment lies not at the level of the individual musicians . . . but at the level of the conductor, who has to start and guide all of the individual players."[14] Definitions of executive function vary. One thorough definition from *The Encyclopedia of Learning Disabilities* explains that executive functions are "mental activities associated with self-control, attention, focus, or concentration that allow an individual to achieve specific goals" and are related to "four kinds of mental activities." These are *working memory* (needed for the "problem solving process"), *internalized or private speech* (for using "complex sets of rules in problem solving"), *control of emotions and impulses* ("allows an individual to remain focused and to continually return to a path of progress toward a desired goal"), and *reconstitution* (the "process of observing behaviors and then synthesizing components of what has been observed into new combinations," which is "essential to problem solving" and extrapolation).[15]

Among these, working memory is a common executive function challenge. Described by the Center for Applied Special Technologies (CAST) as a "'scratch pad' for maintaining chunks of information in immediate memory," the capacity of working memory "is very limited for any student and even more severely limited for many students with learning and cognitive disabilities."[16] It is a challenge for many undergraduate students to repeat the steps (often many) of navigating a library database that an instructor shows in class. But a student with the executive function challenges of AD/HD, particularly working memory and reconstitution, is likely to have even more difficulty when trying to remember and repeat the steps.

UNIVERSAL DESIGN

The effort to find ways to make everything from doorways to websites more accessible to people with physical and learning disabilities is synonymous with the term Universal Design. In the early 1970s, Ronald Mace, a pioneer in the development of accessible architecture and industrial products, coined the term Universal Design (UD). Working with his colleagues at the Center for Universal Design (CUD), which he founded and directed, UD became a comprehensive approach to the design of built environments codified in the influential

Principles of Universal Design.[17] The CUD defines UD as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design."[18] Two emphases of UD are that accessibility should be built into an initial design and that design changes made for a group of people with a particular disability simultaneously benefit many other people.

As UD became an accepted practice in design and architecture, educators began to adopt it as a framework for the development of more inclusive curricula. In the late 1980s, a group of educators at CAST developed Universal Design for Learning (UDL).[19] UDL is built around the idea that universally designed curricula make it possible for students to have full access to course content despite physical limitations, learning disabilities, behavioral problems, or language barriers.[20] The means of ensuring full access, as indicated by the three principles of UDL, is to increase the ways students interact with the course content:

1. Provide Multiple Means of Representation (the "what" of learning).
2. Provide Multiple Means of Expression (the "how" of learning).
3. Provide Multiple Means of Engagement (the "why" of learning).[21]

UDL's focus on representation, expression, and engagement addresses the variety of learning profiles present in classrooms.[22] The first principle refers to presenting course materials in multiple formats. Students with dyslexia, in particular, often require that course material be available in an electronic format readable by a text-to-speech screen reader. At the same time, many other students prefer having electronic content instead of or in addition to a print version or a class lecture.[23] The second principle focuses on enabling students to use various strategies to organize what they have learned and providing supports and scaffolding to give students multiple opportunities to express what they have learned.[24] For students with executive function challenges, organizational aids and options for expressing their knowledge can be essential, while other students appreciate the additional support and options.[25] With regard to the third principle, most students benefit from teachers who engage them in multiple ways beyond a traditional lecture format. For students with AD/HD, who generally learn more effectively in education environments characterized by variety and spontaneity, this is a necessity.[26]

UDL was developed primarily to address inequities in primary and secondary education. The adoption of UDL principles is facilitated by the Individuals with Disabilities Education Act (IDEA). IDEA mandates that primary and secondary schools provide access for students with disabilities to the general curriculum.[27] A UDL curriculum could potentially achieve this goal, reducing the need to have additional staff and resources specifically for students with learning disabilities or AD/HD. Furthermore, many teachers at primary and secondary levels have professional training for how to effectively teach a diverse student body, including students with a variety of learning profiles.[28]

At the postsecondary level, the situation is less structured. Federal legislation, specifically the Americans with Disabilities Act (ADA) and the Rehabilitation Act, require postsecondary institutions to accommodate students with learning disabilities, which is generally accomplished through making available professional note takers, extended test time, tutors, or assistive technology.[29] There is no clarity, however, regarding how individual schools interpret the ADA or Rehabilitation Act with respect to their instruction.[30] Moreover, postsecondary faculty are usually trained to be experts in their discipline, not in pedagogy.[31] How to encourage faculty to develop inclusive curricula inspired the Center on Postsecondary Education and Disability (CPED) at the University of Connecticut to develop Universal Design for Instruction (UDI).

CPED mapped each of the UD principles to the particular challenges of postsecondary instruction, adding two additional principles specific to the postsecondary context (see table 1).[32] Recognizing that there is no one-size-fits-all approach to postsecondary instruction, CPED does not consider these principles to be guidelines for creating a curriculum. Instead, they view them "as a framework for faculty to think reflectively about their teaching and approaches to broaden learning experiences and facilitate an inclusive classroom climate."[33] To expand UDI's applications and theoretical foundation, CPED created an online forum where instructors can share instruction materials that successfully incorporate UDI principles and has undertaken several research projects.[34]

UNIVERSAL DESIGN AND LIBRARY INSTRUCTION

Given its influence in architecture and education, it's not surprising that UD concepts have affected the library world as well. On January 16, 2001, the American Library Association (ALA) approved the Library Services for People with Disabilities Policy, which stipulates that libraries should not merely accommodate the needs of people with disabilities, but instead should work toward "facilitating their full participation in society" through applying UD principles.[35] The policy states, "Libraries should use strategies based upon universal design to ensure that library policy, resources and services meet the needs of all people."[36] Library literature describes a variety of UD applications, including improving the accessibility of physical and website architecture, providing materials in multiple formats, developing assistive technology resources, and training library staff on effective ways to interact with people with disabilities.[37]

There is very little published, however, on applying UD to library instruction or library instruction for students with learning disabilities. Relevant articles include Applin's "Instructional Services for Students with Disabilities."[38] Applin highlights the importance of multisensory teaching, stating that "a librarian's teaching style should automatically include

Table 1. Applying the Principles of Universal Design for Instruction© to Information Literacy

UDI Principle	UDI Definition	UDIL Application
1. Equitable use	Instruction is designed to be useful to and accessible by people with diverse abilities. Provide the same means of use for all students; identical whenever possible, equivalent when not.	■ Create Web-based course guides ■ Spell vocally and write out search words ■ Print words (avoid cursive) ■ Use a sans-serif font
2. Flexibility in use	Instruction is designed to accommodate a wide range of individual abilities. Provide choice in methods of use.	■ Use active learning methods that engage multiple senses ■ Preview and review lesson plan with a vocalized and written agenda ■ Repeat back questions ■ Focus attention internally by asking many questions of the students
3. Simple and intuitive instruction	Instruction is designed in a straightforward and predictable manner, regardless of the student's experience, knowledge, language skills, or current concentration level. Eliminate unnecessary complexity.	■ Teach only skills directly related to completing the assignment ■ Use student-chosen topics ■ Eliminate library lingo and library-centered concepts
4. Perceptible information	Instruction is designed so that necessary information is communicated effectively to the student, regardless of ambient conditions or the student's sensory abilities.	■ Stress usability features in databases and websites ■ Shorten task instructions by using few words in giving directions ■ Present information in multiple formats
5. Tolerance for error	Instruction anticipates variation in individual student learning pace and prerequisite skills.	■ Allocate 1/3 to 1/2 of each class for assisted individual work time
6. Low physical effort	Instruction is designed to minimize nonessential physical effort in order to allow maximum attention to learning. Note: This principle does not apply when physical effort is integral to essential requirements of a course.	■ Use citation-making software, print icons, and other built-in time-saving shortcuts ■ Decrease repetitiveness of tasks
7. Size and space for approach and use	Instruction is designed with consideration for appropriate size and space for approach, reach, manipulations, and use regardless of a student's body size, posture, mobility, and communication needs.	■ Redesign library instruction space to maximize collaboration and minimize distractions
8. A community of learners	The instructional environment promotes interaction and communication between students and between students and faculty.	■ Bring a sign-up sheet to class to make follow-up appointments ■ Check-in on research progress by e-mail ■ Encourage collaboration between the students during class ■ Meet with faculty individually and in groups to collaborate on developing inclusive instruction
9. Instructional climate	Instruction is designed to be welcoming and inclusive. High expectations are espoused for all students.	■ Work with faculty to have a specific goal, such as finding at least one research article on the topic

UDI principles from *Principles of Universal Design for Instruction* by Sally S. Scott, Joanne M. McGuire, and Stan F. Shaw, 2001, Storrs, University of Connecticut, Center on Postsecondary Education and Disability. Copyright 2001. Reprinted with permission.
UDI definitions from Joan M. McGuire and Sally S. Scott, "An Approach to Inclusive College Teaching: Universal Design for Instruction," *Learning Disabilities: A Multidisciplinary Journal* 14, no. 1 (2006): 23–24.

appropriate visual, aural, and tactile techniques to meet the needs of every kind of learner."[39] Although she does not mention UD, Applin's active learning suggestions for a multisensory teaching style are consistent with UD principles. "Learning Disabilities, AD/HD, and the Research Process" by Lann and Toomey provides a detailed outline for guiding students with learning differences through the research process.[40] They do not discuss UD; however, their focus on multisensory techniques for organizing research materials parallels UDI's emphasis on students expressing what they learn in multiple ways.[41]

Later, in *Improving the Quality of Library Services for Students with Disabilities*, Lann broadens her focus from the research process to include library services and instruction. Specifically, she describes how Landmark College's "best teaching practices," which incorporate UDI principles, are designed to "work optimally for all students."[42] She briefly touches on how several UDI principles are being applied in library instruction, focusing on how librarians encourage faculty to develop assignments characterized by *tolerance for error*, and create an "enthusias[tic] and respect[ful]" *instructional climate* that welcomes students with varying learning profiles and social skills.[43] Neumann, in an article titled "What Teacher-Librarians Should Know about Universal Design," describes the importance of UD and UDL to libraries and posits that teacher-librarians "are uniquely positioned to lead the way in exploring and implementing universal design."[44] However, she does not describe specific applications of UD to library instruction. In "Tailoring Instruction for Students with Disabilities" Gyamfi briefly mentions UDL as an "emerging trend" and presents an accommodation model of library instruction, focusing on assistive technology, for students with learning or physical disabilities.[45]

In "Universal Instructional Design for Libraries" Creamer writes that applying UD concepts means moving away from an accommodation approach to developing curricula that "anticipate a wide range of users."[46] In addition to utilizing media, materials, and other technologies, she describes ways to apply universal design concepts to the content of the instruction, such as using topics relevant to the students' lives and making sure students can practice new skills independently and with assistance.[47] An overarching theme in Creamer's article is that what is needed in library instruction is "a change in mindset" from "assuming all learners are the same" to "instructors taking full responsibility for adapting the curriculum to meet the needs of all learners."[48]

UNIVERSAL DESIGN FOR INFORMATION LITERACY AT THE LANDMARK COLLEGE LIBRARY

Nothing less than Creamer's "change in mindset" is necessary to adhere to ALA's disabilities policy, which urges libraries to use UD to "meet the needs of all people." At the Landmark College Library, translating this into practical ways of integrating UD concepts into every aspect of our information literacy program is at the forefront of our practice. To this end, we draw from literature on UDI and UDL, active learning, effective teaching practices for students with learning differences, and our experience teaching students with learning differences to develop a framework for an inclusive library instruction program. We call this framework Universal Design for Information Literacy (UDIL) (see table 1). We chose the principles of UDI as a template and foundation for organizing UDIL. Similar to UDI, we recognize that there are a wide variety of circumstances in which instruction librarians teach. With this in mind, we present a multitude of techniques and options to provide starting points for librarians to consider how they can apply and may already be applying UD principles in their unique circumstances.

Principle 1: Equitable Use

The purpose of the first UDI principle, *equitable use*, is to ensure that all students have access to instructional content that is "identical whenever possible, equivalent when not."[49] One way we apply this is through the use of Web-based course guides, which we introduce and use in class along with a print version. The Web-based version allows students with dyslexia and others who learn better aurally to use a text-to-speech screen reader to access the content. In addition, students with low vision or who prefer a larger text size can change the size to meet their needs, and all students can access the content anywhere and anytime to review the material and link to electronic resources. Since course guides act as outlines of the sources covered during the library session, they are helpful for students with dyslexia, who often have trouble taking notes, as well as for students with working memory difficulties.

Other applications of equitable use include voiced spelling of search words, printing words and terms used during the session, and using sans-serif fonts for all library materials. Spelling search words vocally gives students with dyslexia, spelling challenges, or those who are unfamiliar with the terms the opportunity to simultaneously participate in the search process.[50] Handwriting in print letters makes it easier for all students to read the words but is especially important for students with dyslexia, who have difficulty reading nonstandard forms of letters (e.g., cursive). Similarly, serif fonts—fonts with lines that are added to the ends of letters—create a barrier for students with dyslexia because they increase the difficulty of reading the text. Using a sans-serif font, such as Arial or Trebuchet, eliminates this barrier.

Principle 2: Flexibility in Use

The purpose of principle 2, *flexibility in use*, is to use varied teaching methods that are effective for students with a wide range of learning profiles. Active learning methods focusing on multisensory instruction and engaging students through lecture, small group, and independent activities offer one way to provide this type of instruction.[51] Another way is to

preview and review the agenda verbally and in writing, which helps motivate students by emphasizing how the current activity relates to the assignment. Keeping the agenda in a visible place throughout the class and referring to it as each goal is achieved also provides students with working memory difficulties a way to keep track of the current class content. Other techniques include repeating back the questions students ask and asking students many questions. Both techniques help students with attentional difficulties shift their focus internally and away from external stimuli, enabling them to self-monitor their behavior.[52]

Principle 3: Simple and Intuitive Instruction

Principle 3, *simple and intuitive instruction*, reminds the instructor to build upon the knowledge the student already has by using relevant topics and familiar language. Remembering the steps of navigating a library database is a challenge for most students. For students who have difficulty with working memory, it can be an insurmountable challenge. Teaching only skills that relate to the assignment builds upon the student's existing knowledge base and increases the likelihood that the information will move from working memory to long-term memory. Another way to apply principle three is by removing the use of library-specific terminology that constitutes a type of "culturally exclusive" language and acts as a barrier for students to understand the material.[53] Talking about the action, (e.g., "borrowing a book from another library"), instead of using the library term (e.g., "ILL"), makes the process more intuitive.

Principle 4: Perceptible Information

Principle 4, *perceptible information*, is about designing the instruction "so that necessary information is communicated effectively to the student, regardless of ambient conditions or the student's sensory abilities."[54] Students often do not realize that there are built-in features in databases that can help make the information more perceptible. For example, for students who use text-to-speech screen readers, learning the difference between how to access HTML and PDF versions of articles can make the difference between reading the article immediately or needing to scan it and convert it to a screen-readable format. In addition, students may not be aware of built-in dictionaries and glossaries.

Two other applications of principle 4 are using few words in giving directions and presenting information in multiple formats. Just as including too many databases and search strategies can be counterproductive to memory, so can giving detailed instructions that assume a shared knowledge base. Instead, succinct instructions using fewer words provided in sequential order are more effective.[55] Finally, examples of presenting material in multiple formats include using online video clips to illustrate concepts, emphasizing the increasing availability of audio and video content in databases and other electronic resources, and linking multimedia screencasts to Web-based course guides.

Principle 5: Tolerance for Error

Unlike semester-long courses, in information literacy workshops (where time is limited) students often do not have the opportunity to practice immediately what they have learned and recover from mistakes. Principle 5, *tolerance for error*, is about anticipating "variation in individual student learning pace and prerequisite skills."[56] By allocating one-third to one-half of the class for individual and assisted practice time, students have the opportunity to ask the instructor questions they may have been afraid to ask in front of the group and to receive help that is geared to their particular needs. This also allows time to practice skills related to completing their assignment, to recover from mistakes, and move the skills taught from working memory to long-term memory.

Principle 6: Low Physical Effort

The focus of principle 6, *low physical effort*, is to "minimize nonessential physical effort in order to allow maximum attention to learning."[57] One way to reduce unnecessary physical effort is to teach students how to use the citation-making capabilities of academic databases. This can save students who procrastinate, who have difficulty with typing, or who have executive function difficulties hours of work the night before an assignment is due. Likewise, for printing, many students think they need to copy and paste the content of an article into a Word document to eliminate the extraneous marginal content without realizing that print icons can save them that effort.

Another example of unnecessary physical effort is repetitive class work. One way to reduce this is to make each class more engaging by eliminating generic aspects of the class and using that time exclusively to focus on the resources the students need to complete their assignment. Moreover, by limiting instruction to academic level- and assignment-appropriate resources, library instruction is scaffolded, building a skill set throughout students' academic careers.

Principle 7: Size and Space for Approach and Use

Principle 7, *size and space for approach and use*, is about designing the instructional space "with consideration for appropriate size and space for approach, reach, manipulations, and use regardless of a student's body size, posture, mobility, and communication needs."[58] Because students with attentional difficulties are paying attention to irrelevant stimuli in their environment, a classroom that minimizes extraneous stimuli is helpful.[59] This can be achieved by arranging a classroom in a way that allows students to see the faces of their peers (allowing them to interact with each other) and minimizes the interference in their line of sight.[60] An effective way to do this is changing a library computer lab from rows, where students can view the computer screens and backs of everyone in front of them, to a U shape. This seating arrangement also allows more freedom of movement and helps those hard of hearing by making it easier for them to see the faces of speakers. Other

arrangements that facilitate discussion and student collaboration include group working stations or large tables.[61]

Principle 8: A Community of Learners

Principle 8, *a community of learners*, encourages teachers to "promote interaction and communication among students and between students and faculty."[62] For the library instruction to go beyond the short period of time in which the students are in an information literacy class, librarians need to focus on building relationships with the students and faculty. Bringing a sign-up sheet for follow-up appointments is one way to do this; checking in with students by e-mail is another. Working one-on-one with a librarian, especially for students who are not regular library users, can also serve to reduce library anxiety. Generally, current students prefer to work collaboratively and learn from their peers.[63] Librarians can encourage students to work together in both organized exercises and spontaneously. A talkative class is a learning class.

This principle also underscores the importance of librarians and faculty learning from each other to provide inclusive instruction. Librarians can facilitate community building by attending academic department meetings and participating on curriculum committees. In these venues, instruction librarians can work to incorporate information literacy and UD principles throughout the curriculum. In addition, by sharing the data from library instruction assessments and providing opportunities for faculty to share their feedback, librarians can garner faculty insights on best teaching practices and collaborate with them to improve information literacy instruction.

Principle 9: Instructional Climate

A key aspect of principle 9, *instructional climate*, is creating an environment in which students are motivated to learn. Whether it is finding a research article or a primary source document, gearing the class toward the achievement of a specific, required goal leads to increased student engagement with the subject matter and motivation to complete the task. At the same time, it has the added benefit of developing collaborative relationships with faculty to proactively integrate library instruction into assignments.

Another aspect of this principle is creating a welcoming instructional environment. Some students have had negative classroom experiences in which they were stigmatized or disrespected because of their learning differences.[64] A positive, welcoming instructional environment counteracts these negative experiences and facilitates participation and learning for all students.

DISCUSSION

In many library classrooms UDI principles are already being applied, albeit not consciously as UDI principles. UDI should already be a part of what librarians are doing if they are in line with the ACRL Standards for Proficiencies for Instruction Librarians and Coordinators. Paralleling UDI principles, a librarian adhering to these standards

- maintains awareness of the communication needs of different learning styles;
- designs instruction to best meet the common learning characteristics of learners;
- integrates appropriate technology into instruction to improve student receptiveness, comprehension, and retention of information;
- presents content in diverse ways; and
- modifies teaching methods and delivery to address different learning styles, language abilities, developmental skills, age groups, and diverse needs of student learners.[65]

Applying UDI principles changes library instruction by requiring librarians to think, upfront, about delivering library instruction in a way that is accessible not only to students with disabilities but also to students with a mental illness or depression, language barriers, or any other "difference."

A great deal of thought and research has been done on how to effectively engage students in library classrooms. A search in any library database will reveal a plethora of articles on applying active learning methods. By consciously applying UDI principles while planning information literacy sessions, the purpose of using active learning methods broadens. Instead of simply engaging students and breaking up lectures, active learning methods become a way to reach the variety of learners in the classroom. UDI does not replace active learning methods of teaching; rather, applying UDI principles demands the use of active learning methods.

UDI challenges the traditional bell curve and replaces the idea that instruction is geared toward an "average" student with a certain percentage of students excelling and a certain percentage of students failing. Instead, UDI implies that the "average" student is fictional and that effective instruction is accessible for everyone. As Gander and Shmulsky write, the traditional bell-curve view needs to be replaced with "the assumption that a wide variety of learning styles and processing capabilities will be present in the classroom and that effective design will maximize the likelihood of achievement and success for all of these different individuals."[66] By using UDI methods in library classrooms, librarians can reach students with learning disabilities, continue to meet the needs of students who are able to learn in a more traditional environment, and also support the increasingly diverse range of learners in library classrooms.

UDI is not a list of steadfast rules or sequential steps. Rather, UDI provides a set of principles to help guide teaching practices. In presenting UDIL, our application of UDI principles to information literacy, we recognize that a one-size-fits-all approach will not work for the wide variety of circumstances in which instruction librarians teach. Instead, UDI principles act as a framework for postsecondary faculty to use to develop more inclusive approaches to teaching. We

hope that UDIL will be used in a similar way by instruction librarians.

Developing UDIL is an ongoing effort. Librarians must constantly adjust techniques on the basis of classroom experiences, current research, and assessment. Over the next several semesters, we are planning to conduct a formal assessment using focus groups and surveys to validate the effectiveness of our UDIL practices. Using this assessment and experiences in library instruction, our application of UDIL will continue to evolve.

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